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EXAMINER

LAM, DANIEL K

ART UNIT PAPER NUMBER

2667

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/622,241

Applicant(s)

SALONAH O ET AL.

Examiner

Daniel K Lam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 14-26 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to amendment filed on March 29, 2004.

Claim Objections

2. Claim 10 is objected to because “function” is misspelled as “Junction”. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-6, 10, 11, 14, 17-21, and 24-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. No. 6,339,698 issued to Cullen in view of U. S. Pat. No. 6,009,328 issued to Muszynski.

Regarding **claim 1**, Cullen discloses a method of measurement reporting in a telecommunication system comprising mobile and base stations, wherein decisions upon establishing or canceling a communication link between a mobile station and a base station are made in the network on the basis of measurement reports sent from the mobile station to the network, characterized in that the method comprises the steps of:

- Taking measurements of link performance e.g. BER, C/I, received power or bit rate (Defining a first and second sets of trigger conditions). See col. 3, lines 12-13. The measurement means and processing may be located according to the particular

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functions they are required to perform. For example, at the mobile station 4d, or at the base station 4b. See fig. 2, and col. 2, line 1-3.

- The processing element performs mathematical function of one or more parameters (Defining a logical function for combining said first and second sets of trigger conditions). See col. 4, lines 52-53.
- The measurement unit 4d, at the mobile station, can be configured to make different measurements according to instruction received from the processing unit 5 (at a mobile station, determining the state of each trigger condition, combining the states according to the logical function). See fig. 2, and col. 3, lines 29-31. The collected measurements are forwarded to the base station 2b and base site controller 6 (sending a measurement report to a base station in dependence upon the condition of the logical function). See col. 3, lines 16-20.

However, Cullen does not explicitly disclose the trigger conditions are radio signal properties in the uplink and downlink directions.

Muszynski discloses the base station measures periodically, in the uplink direction, the received $E(b)/N(o)$ value that is indicative of the signal quality from each mobile station. See col. 2, lines 44-45. Furthermore, he discloses the transmission of pilot signal by all base stations as a downlink signal quality reference. See col. 8, lines 65-66.

Therefore, it would have been obvious to those having ordinary skill in the art, at the time of invention, to define a first and second sets of trigger conditions, and a logical function for combining the first and second sets of trigger conditions, determine the state of each trigger conditions, combine the states according to the logical function, and send a

measurement report to a base station in dependence upon the condition of the logical condition for a key reason. In order to reduce the signaling capacity of network, it is advantageous to have measurement means at the points, such as uplink direction at the base station and downlink direction at the mobile station, where the properties are to be measured, and then selectively forward the results to a data processing element as taught by Cullen. See col. 1, lines 45-46, and lines 57-67.

Regarding **claims 2**, in addition to disclose the limitations in claim 1 discussed earlier, Cullen further discloses the measurement can be made dynamically depending on the prevailing conditions of the network e.g. signal, time, voice, or data. Furthermore, the process control unit 5 instructs the measurement unit 4d to take measurement on the link performance parameters (the first and second set of triggering conditions are dynamically defined by the network). See col. 3, lines 11-22, and lines 31-35.

Regarding **claims 3**, in addition to disclose the limitations in claim 1 discussed earlier, Cullen further discloses different algorithms defined in the measurement request message are available to the external application (the logical function is defined by the network). See col. 5, lines 57-61.

Regarding **claims 4**, in addition to disclose the limitations in claim 1 discussed earlier, Muszynski further discloses:

- A first combination of the first and second sets of trigger conditions and the logical function are defined to be used for radio signals from or to active base stations (active BS 24) having an active link (link 84) with the mobile station (MS 30). See fig. 1, and col. 9, lines 15-23, and lines 53-58.

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- A second combination of the first and second sets of trigger conditions and the logical function are defined to be used for radio signals from or to candidate base stations (target BS 22) not having an active link (link 82) with the mobile station (MS 30).

Also see fig. 1, and col. 9, lines 15-23, and lines 53-58.

- At the mobile station, the first combination is used for radio signals from or to active base stations (BS 24) having an active link (link 84) with the mobile station (MS 30) and the second combination is used for radio signals from or to candidate base (target BS 22) stations not having an active link (link 82) with the mobile station (MS 30).

Also see fig. 1, and col. 9, lines 15-23, and lines 53-58.

Regarding **claims 5 and 6**, in addition to disclose the limitations in claim 4 discussed earlier, Muszynski further discloses the step of creating (as in claim 5) and deleting (as in claim 6) an active link (link 84) between the mobile station (MS 30) and a candidate base station (BS 22) not having an active link (link 82) with the mobile station (MS 30) when the network receives from the mobile station a measurement report triggered by the radio signals from or to that candidate base station (the MS pilot signal quality measurements indicates that a soft handoff to second BS 22). Also see fig. 1, and col. 9, lines 15-23, and lines 53-58.

Regarding **claim 14**, in addition to disclose the limitations in claim 1 discussed earlier, Cullen further discloses the one of the algorithms that can be set in the measure message is change in the value of a parameter (change of the parameters of the received radio signals). See col. 5, lines 57-61.

Regarding **claims 17, 18, 19, and 20**, in addition to disclose the limitations in claim 1 discussed earlier, Cullen further discloses the measure request message contains a list of parameters to be measured and a report method parameter (network informs the mobile station what information to include in the measurement report and the mobile station includes this information in the measurement report as in claim 17; an ordered using a predefined number of the best radio signals as in claim 18; the number of radio signals to be reported is given by the network as in claim 19. path loss as in claim 20). See col. 5, lines 56-65.

Regarding **claims 10, 11, and 21**, in addition to disclose the limitations in claims 1 and 17 discussed earlier, Cullen further discloses taking measurement of link performance e.g. BER, C/I, received power or bit rate (received power level as in claim 10; interference in the received radio signal as in claim 11; and carrier to interference ratio as in claim 21). See col. 3, lines 12-13.

Regarding **claim 24 (new)**, Cullen discloses a base station, comprising:

- A defining means for taking measurement of link performance e.g. BER, C/I, received power or bit rate (defining means of a first and second sets of trigger conditions; claim 1.). See col. 3, lines 12-13. The defining means and processing may be located according to the particular functions they are required to perform. For example, at the mobile station 4d, or at the base station 4b. See fig. 2, and col. 2, line 1-3.

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- The processing element performs mathematical function of one or more parameters (defining means of a logical function for combining said first and second sets of trigger conditions). See col. 4, lines 52-53.

Regarding **claim 25 (new)**, in addition to disclose the limitations in claim 24 discussed earlier, Cullen further discloses the instruct and receive 10 in the base station transmits measurement request to mobile station 4d via link 8d (transmitting means for transmitting first and second sets of trigger conditions, and a logical function). See fig. 2.

Regarding **claim 26 (new)**, in addition to disclose the limitations in claim 25 discussed earlier, Cullen further discloses the instruct and receive 10 in the base station receives measurement report from the mobile station 4d via link 8d (measurement report receiving means from a mobile station). See fig. 2.

5. **Claims 7-9, 15, and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. No. 6,339,698 issued to Cullen in view of U. S. Pat. No. 5,267,261 issued to Blakeney II et al (hereinafter Blakeney).

Regarding **claim 7**, Although Cullen discloses the limitations in claim 1 discussed earlier, he does not disclose the two different logical functions are such that when a base station is in the active set, a measurement report is not triggered by a radio signal of that base station for the same set of radio properties as would trigger the transmission of a measurement report when the base station is in the candidate set.

Blakeney discloses when a mobile station detects a good pilot signal as determined by a logical function, such as crossing a predetermined threshold and sending the message,

from a base station not in the active set but in the candidate set, it sends a measurement message to the current base station (see fig. 9 reference 252, and col. 28, lines 9-17).

Therefore, it would have been obvious to those having ordinary skill in the art to allow the mobile station to report quality of the communication channels to the base stations in the candidate set so that the system controller can instruct the base stations in the candidate set to establish communications with the mobile station (see col. 3, lines 62-68). As a result, the mobile station is communicating with at least one base station at all times throughout the handoff process. Hence, there is no interruption in communication between the mobile station and the user as taught by Blakeney. (see col. 4, lines 36-43).

Regarding **claim 8**, in addition to disclose the limitations regarding claim 1 in the previous paragraph, Blakeney II et al. further discloses the method comprises a step of defining a logical function for use when the number of base stations in the active set is equal to a predefined maximum number, and defining the first and second sets of trigger conditions on the basis of the radio signal properties of the active base station having the worst signal conditions, and wherein a measurement report is triggered by a radio signal of a candidate base station causes that worst base station to be replaced by the candidate base station (see col. 24, lines 39-60).

Regarding **claim 9**, in addition to disclose the limitations in claim 8 in discussed earlier, Blakeney II further discloses the maximum number is dynamically defined by the network (see col. 24, lines 42-44).

Regarding **claims 15 and 16**, in addition to disclose the limitations in claim 1 discussed earlier, Blakeney further discloses that the trigger conditions comprise at least one base station specific offset value (claim 15); and at least one of the offset values is dynamically defined by the network (claim 16). See col. 3, lines 32-44.

6. **Claims 22 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. No. 6,339,698 issued to Cullen in view of U. S. Pat. No. 6,009,328 issued to Muszynski in further view of U. S. Pat. No. 6, 223, 031 issued to Naslund.

Regarding **claims 22 and 23**, although Cullen discloses the limitations of first and second set of trigger conditions and a logical function in claim 1, and Muszynski discloses the limitations of first and second combinations for use toward active and candidate base stations in claim 4, they do not disclose:

- Receiving receiver for receiving information about first and second set of trigger conditions corresponding, respectively, to uplink and downlink signals and a logical function.
- Monitoring means for monitoring radio signals.
- Checking means which is responsive to the receiving means and the monitoring means and which has the functionality of checking the state of each trigger conditions.
- Combining means responsive to the checking means for combining the states.
- Sending means responsive to the combining means for sending a measurement report to the base station.

Naslund discloses a structure for monitoring radio signals that can also be used by the mobile station, comprising:

- Measuring means 201 (Receiving means for receiving first and second set of trigger conditions, and a logical function; claim 22. Receiving means for receiving first and second combinations; claim 23. Monitoring means for monitoring radio signals; claim 22). See fig. 5, and col. 8, lines 64-67.
- Sorting means 206 and controlling means CPU (Checking means which is responsive to the receiving means and the monitoring means and which has the functionality of checking the state of each trigger conditions; claim 22. Checking means uses first combination for radio signals from or to active base station and uses second combination for radio signals from or to candidate base station; claim 23). See fig. 5, and col. 10, lines 26-28), and
- Average means 203 (Combining means responsive to the checking means for combining the states according to the logical function; claim 22. Combining means uses first combination for radio signals from or to active base station and uses second combination for radio signals from or to candidate base station; claim 23). See fig. 5, and col. 9, lines 49-53.

Cullen further discloses the mobile station 4d sends measurement reports to the BTS 2b via link 3d (a sending means responsive to the combining means for sending a measurement report to the base station; claim 22). See fig. 1.

Therefore, it would have been obvious to those having ordinary skill in the art, at the time of invention, to define information for first and second set of trigger conditions

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corresponding, respectively, to uplink and downlink signals and a logical function, and to develop a mobile station having receiving means, monitoring means, checking means, combining means, and sending means for a key reason. In order to reduce the signaling capacity of network, it is advantageous to have intelligent measurement means and processing capability at the point, such as at the mobile station, where the radio signal properties are to be measured, and then selectively forward the results to a data processing element as taught by Cullen. See col. 1, lines 45-46, and lines 57-67.

Allowable Subject Matter

7. **Claims 12 and 13** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments with respect to claims 1 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel K. Lam whose telephone number is (703) 305-8605. The examiner can normally be reached on Monday-Friday from 8:30 AM to 4:30 PM.


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If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (703) 305-4378. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status Information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DKL *dkl*
June 26, 2004


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 6/25/04